

PROCEEDINGS
OF THE
BIOLOGICAL SOCIETY OF WASHINGTON

SINIOTROCHUS PHOXUS NEW GENUS, NEW SPECIES,
A MYRIOTROCHID HOLOTHURIAN NEW TO THE
UNITED STATES EAST COAST

BY DAVID L. PAWSON

Smithsonian Institution, Washington, D.C. 20560

The essentially deep-sea family Myriotrochidae includes apodous holothurians whose calcareous deposits consist of wheels of a unique type. The representatives are generally small, up to 60 mm in total length, and the group is especially well represented in the Arctic, where all three genera comprising the family occur. *Myriotrochus* Steenstrup, 1851, now comprises 14 species (Belyaev, 1970) and extends southwards in the Pacific Ocean to northern New Zealand. The monotypic genera *Acanthotrochus* Danielssen and Koren, 1879, and *Trochoderma* Theel, 1877, have not as yet been found south of latitude 60° N.

Through the courtesy of Miss Cathy A. Salmons of the University of North Carolina and Dr. W. Kirby-Smith of the Duke University Marine Laboratory, I received for study a small collection of holothurians taken by the Duke University vessel R/V *Eastward* off North Carolina. The collection included three incomplete specimens of the new myriotrochid described below. This is the first record of the family from the Western Atlantic south of 45° N; it is probable that myriotrochids are rather more widespread in the Atlantic than has formerly been supposed.

Type material is deposited in the National Museum of Natural History, Smithsonian Institution. I am grateful to Miss Salmons and Dr. Kirby-Smith for access to the material.

ORDER APODIDA BRANDT, 1835

FAMILY MYRIOTROCHIDAE OESTERGREN, 1907

Siniotrochus new genus

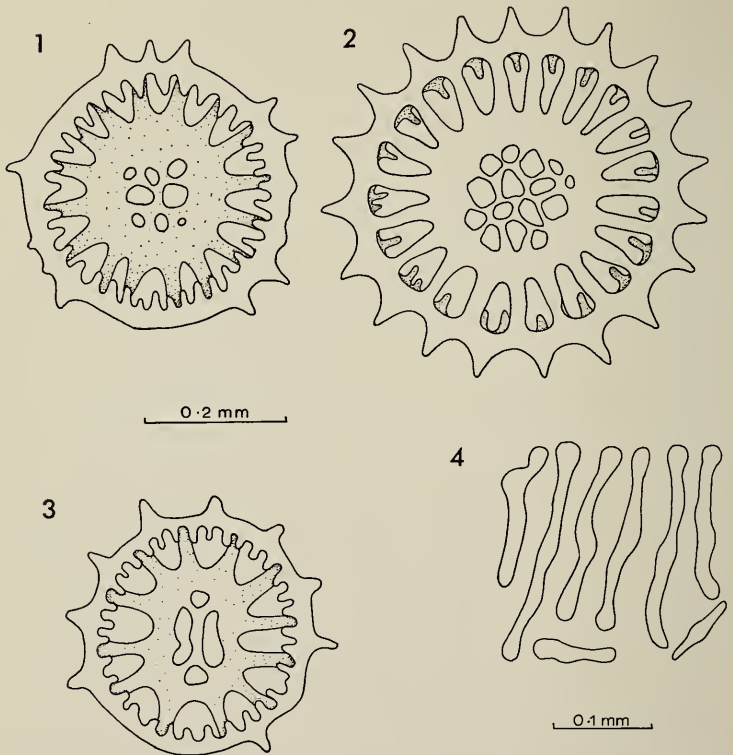
Diagnosis: As for the species.

Type-species: *S. phoxus* new species.

Etymology: Generic name masculine, derived from Greek *sinion*, a sieve, and *trochos*, a wheel. Specific name from *phoxos*, pointed. Names refer to unique structure of wheels, with marginal spines and perforated hubs.

Siniotrochus phoxus new species

Diagnosis: Wheels concave, circular to oval, 0.42 mm in average diameter. Rim with an average of 18 blunt spines projecting outwards



FIGS. 1-4. 1, wheel, outer aspect; 2, wheel, inner aspect; 3, wheel, outer aspect; 4, tentacle deposits.



FIG. 5. Left, Holotype, dorsal aspect; right, Paratype 1, ventral aspect.

and an average of 40 broad, blunt spines projecting inwards. An average of 17 spokes radiate from a wide hub, which has 4–15 angular perforations.

Type-locality: R/V *Eastward* Station 15712, 3 Nov. 1970, off North Carolina, 34°00' N, 74°14' W to 33°59.3' N, 74°12.9' W, 3985–4000 meters, Blake trawl.

Type-specimens: Three incomplete specimens. Holotype (E11394) 35 mm in length, greatest width 8 mm (anterior end missing); Paratype 1 (E11395) 31 mm in length, greatest width 7 mm (anterior end missing); Paratype 2 (E11396) fragment, consisting of calcareous ring and associated structures.

Description: Body essentially cylindrical; color in alcohol greyish. Holotype and paratype 1 lack calcareous ring, tentacles, gonad, Polian vesicles and related structures. Paratype 2 is fragment of anterior end of body with approximately ten macerated tentacles whose structure cannot be accurately determined. Calcareous ring solid, 6.6 mm in diameter, apparently directed ventrally.

Dorsal body wall coriaceous due to presence of single layer of wheels. Wheels closely aggregated anteriorly and posteriorly, slightly separated near middle of body, where there are approximately 5 wheels per mm². Ventral body wall with far fewer wheels than dorsal, and relatively smooth, except at anterior and posterior extremities where wheels are as numerous as they are dorsally.

Calcareous deposits of body wall exclusively wheels (Figs. 1–3) of one type; they are concave, lying in body wall with concave surface

facing the exterior. Rim with up to 20 (average 18) outwardly projecting spines with broad bases, tapering rapidly to a blunt point. Projecting inwards from rim are up to 45 (average 40) short, broad, blunt spines. Up to 19 (average 17) spokes radiate from the broad, saucer-shaped hub to meet the rim. The hub or center of each wheel carries 4–15 angular perforations. Wheels vary greatly in size (average diameter 0.42 mm) and shape, ranging from circular to oval. The number of spokes and spines also vary considerably. No developmental stages of wheels found.

Tentacles contain numerous minute rods 0.07–0.25 mm in length. Rods essentially straight, with central swelling and rounded ends (Fig. 4). No wheels found in tentacles.

Remarks: The wheels in this species differ from those of other myriotrochids in several important respects. In *Myriotrochus* wheels, there are no outwardly directed projections; *Trochoderma* has such, but lacks inwardly directed projections; *Acanthotrochus* has wheels of two types, one type similar to those of *Myriotrochus*, the other with outwardly directed projections only. The most conspicuous feature of the *Siniotrochus* wheels is the consistent presence of perforations in the hub. In other myriotrochids the hub is solid, without perforations. An unusual wheel illustrated by Belyaev (1970) and referred by him to "*Myriotrochus* sp" has central perforations, but otherwise is typical of *Myriotrochus*.

The affinities of this new genus are not clear. The family is known to range from the Triassic onward (as Family Theeliidae—see Frizzell and Exline, 1966, p. U668), and is represented by wheels of several types. None, however, approach the *Siniotrochus* condition.

LITERATURE CITED

- BELYAEV, G. 1970. The ultraabyssal holothurian genus *Myriotrochus* (order Apoda, Family Myriotrochidae). *Trudy Instituta Okeanologii* 86: 458–486, 15 text-figs., 2 plates. (In Russian).
- FRIZZELL, D. L., AND H. EXLINE. 1966. Holothuroidea—fossil record. Pp. U646–U672, figs. 519–534, in R. C. Moore (ed.), *Treatise on Invertebrate Paleontology, Part U Echinodermata* 3. University of Kansas Press, Lawrence.